Habitat Working Group Meeting

August 9, 2005

Ontario, CA

Development of Ecosystem Restoration Plan and PEIR

Initial Steps - Completed

- **Step 1:** Identified initial project objectives
- **Step 2:** Reviewed readily available information and prepared:
  - First version of Existing Conditions and No Action Alternative descriptions
  - Description of previous alternatives
- **Step 3:** Identified unresolved issues
- **Advisory Committee/Work Group input:**
  - Identified/focused unresolved issues
  - Focused future versions of Existing Conditions and No Action Alternative descriptions

Current Steps

- **Step 4:** Collect information and develop analytical tools to reduce unresolved issues
  - Range of inflows and hydrologic models
  - Range of habitats at the Sea and surrounding areas
  - Water Quality at the Sea and in tributaries
    - Selenium, nutrients, salinity, & other constituents
    - Circulation and water quality models for Salton Sea
  - Air Quality in the basin
    - Response of emissive playa and possible controls
    - Air quality models
  - Eco-risk and human health risks
  - Basic infrastructure features

Advisory Committee/Work Groups input:

- Methods to project inflows and assumptions for models
- Prioritization/distribution of habitats
- Methods to predict water and air quality conditions over 75 years
- Methods to evaluate air quality issues
- Methods for eco-risk management
- Input to development of infrastructure configurations

Next Steps

- **Step 5:** Combine Components into a Range of Permutations for Ecosystem Restoration
  - Develop several habitat combinations
  - For each habitat combination:
    - Determine water quality and quantity needs
    - Identify water quality management methods
    - Consider range of configurations and range of inflows
    - Include air quality management components
  - More than 100 permutations
- **Advisory Committee/Work Group input:**
  - Prioritization of habitats and other components to develop permutations

Next Steps

- **Step 6:** Prepare Ecosystem Restoration Plan
  - Modify Existing Conditions and No Action Alternative descriptions
  - For each permutation:
    - Describe habitat goals and benefits/drawbacks
    - Prepare specific layouts for all habitat areas and facilities to manage flows, water quality, and air quality
    - Prepare phased construction and O&M plan
    - Develop phased cost estimates
- **Advisory Committee/Work Group input:**
  - Review of Existing Conditions & No Action Alternative sections
  - Focus of each permutation

Next Steps

- **Step 7:** Consider screening criteria or combine permutations to identify Alternatives
- **Step 8:** Prepare Draft PEIR
  - Compare Alternatives to No Action Alternative and Existing Conditions
  - Compare all Alternatives to conditions defined by Variability ("Cumulative Impact Assessment)
  - Determine impact of "Second 800TAF Transfer"
- **Advisory Committee/Work Group input:**
  - Screening criteria and PEIR alternatives
  - Significance criteria for PEIR
  - Level of detail for the impact assessment

Role of the Habitat Working Group

- Provide input on habitat goals and objectives
- Provide input that improves the technical foundation and scientific credibility of the project
- Provide policy input that improves the public acceptability of the project
- Provide input that promotes coordination and helps develop consistency with other habitat and conservation activities in the Salton Sea area
- Confirm that the each of the alternatives meets, to the extent possible, the habitat goals of the project
- Provide input on mitigating construction and phasing impacts as appropriate

Agenda

- Habitat goals and objectives
- Information on existing habitats
- Update on Science Panel activities
- Update on bird habitat modeling
- Restoration approach
- Preliminary restoration alternatives
  - focus on inflow-related habitats

Draft
Habitat Goals and Objectives

Overall Goal

- *To retain and maximize the diversity and abundance of fish and wildlife species that use the Salton Sea and related habitats through a combination of habitat preservation, enhancement, and creation*

Objectives

- *Encourage habitat diversity by maintaining a mosaic of habitat types at and adjacent to the Salton Sea in an arrangement that enhances their value to fish and wildlife*
- *Enhance the quality of existing habitats through improvements in water quality and water management*
- *Make full use of available water resources to create habitats that support species diversity and sensitive species*

Objectives (con't)

- *Incorporate flexibility in the facility and habitat designs to address current uncertainty through adaptive management and to provide the ability to respond to future changes in conditions and the status of individual fish and wildlife species*
- *Develop a monitoring and adaptive management plan that will generate the data needed to reduce uncertainty and build the scientific basis future management*

Open Water (Salton Sea)

- *Support conditions that maintain productive invertebrate populations as a forage base for birds*
- *Support conditions that maintain fish as a forage base for piscivorous birds and sport fish*
- *Support water quality conditions that minimize ecological and human health risk*
- *Provide open water as loafing and foraging habitat for birds*
- *Provide nesting and roosting habitat for colonial waterbirds*

Shoreline/Shallow Water Habitat (Salton Sea)

- *Support conditions that maintain productive invertebrate populations*
- *Support conditions that maintain small fish accessible to foraging birds*
- *Support water quality conditions that minimize ecological and human health risk*
- *Provide isolated nesting and loafing areas for birds*
- *Provide aquatic habitat connectivity to support movement of desert pupfish*

Estuarine and Delta Habitats (River Mouths)

- *Encourage habitat and species diversity by maintaining or enhancing the habitat characteristics associated with freshwater inflows to the Salton Sea*
- *Support water quality conditions that minimize ecological and human heath risk*

Managed Freshwater Marsh

- *Maintain freshwater marsh near the Salton Sea to support waterfowl and marsh-dependent species*
- *Provide opportunity to expand existing acreage of permanent and seasonally flooded freshwater marsh (including existing refuges and additional created marsh habitats)*
- *Provide water quality that minimizes ecological and human health risk*

Managed Saline Shallow Water Habitat

- *Provide opportunity to create additional saline shallow water habitat*
- *Provide conditions that support diverse and productive invertebrate populations accessible to foraging birds*
- *Provide water quality that minimizes ecological and human health risk and the potential for avian diseases*

Upland

- **Native Tree Habitat**
  - *Maintain and create patches of native trees to enhance habitat for resident and migratory songbirds*
- **Agricultural Habitat**
  - *Support the maintenance of agricultural crops and farming practices that provide habitat for birds*

Existing Habitats

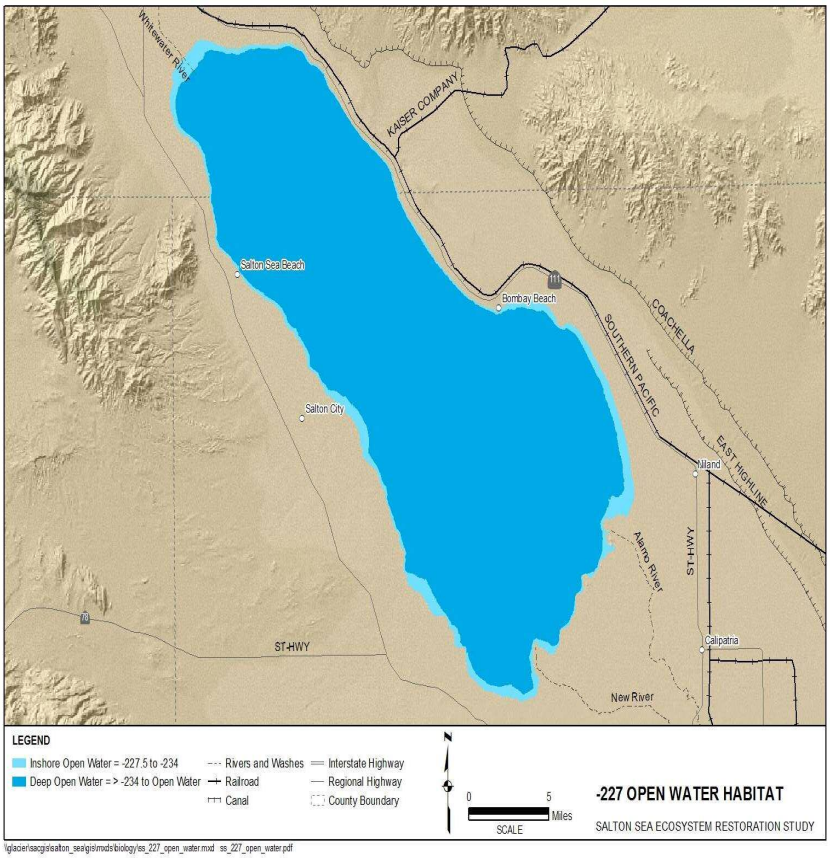
- **Salton Sea**
  - **Open deep water**
  - **Shoreline/shallow water (shoreline pools, mudflats)**
  - **Estuaries and deltas (river mouths)**

- **Wetland Habitat**
  - **Freshwater marsh**
    - managed and unmanaged
  - **Saline wetland**
    - managed

- **Upland Habitat**
  - **Agriculture**
  - **Tree/Shrub**
    - native tree
    - tamarisk

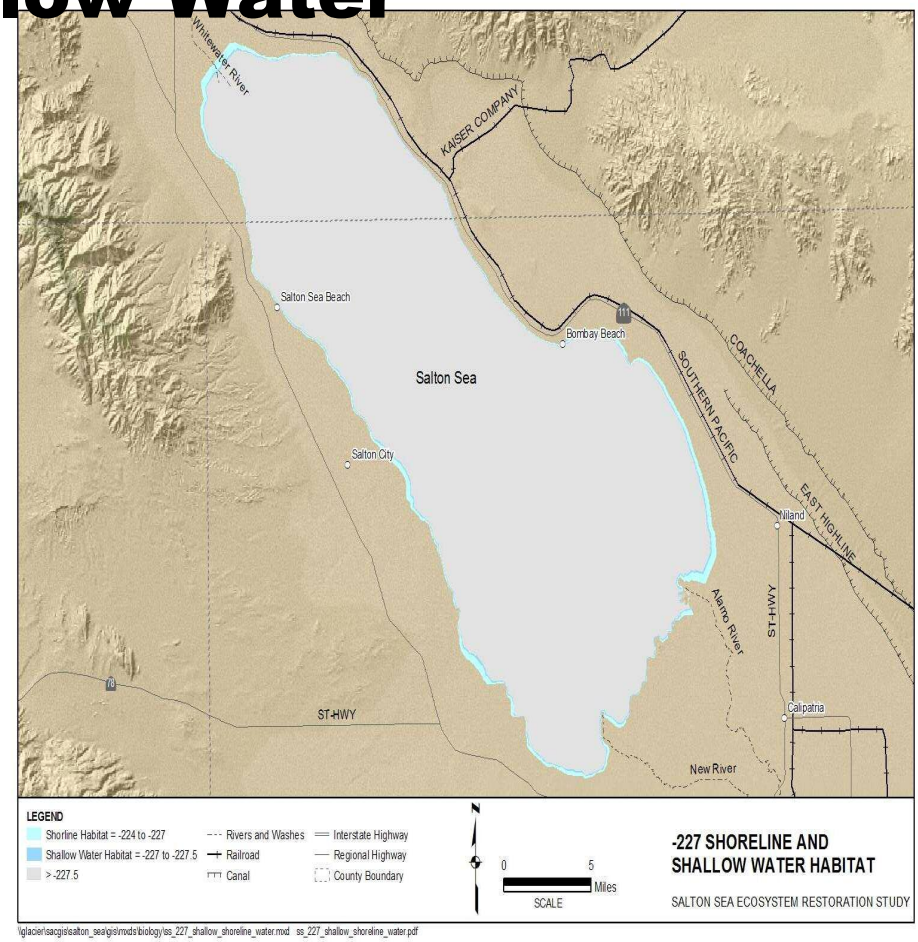
Salton Sea
Open Deep Water

- **Area ≥ 0.5 ft deep**
- **233,048 acres at elevation -227**
- **Inshore area**
  (> 0.5 and < 6.6 ft)
  14,436 acres
- **Deep area**
  (> 6.6 ft)
  218,612 acres



Salton Sea Shoreline/Shallow Water

- Area ≤ 0.5 feet deep
- 1,074 acres at elevation -227_



Salton Sea
Islands and Snags

- Islands
  - Mullet Island – about 7 ac.
  - Johnson Island – about 2.5 ac.
  - Morton Bay – about 4 ac.
  - Obsidian Butte Island-about 4 ac.
  - Sand bars – about 5 ac.
- Snags
  - 76th Ave. snag field – about 40 ac.
  - 81st Ave. snag field – about 2 ac.
  - Red Hill snag field – about 84 ac.
  - 76th Ave. powerline – about 104 ac.
  - Test Base powerline – about 7 ac.

Estuary/Delta (River Mouths)

- **Extends about 1,640 to 2,640 feet from mouth of Alamo and New rivers (about 100 to 250 ac.)**

Salton Sea
Wetland Habitat

- **Managed freshwater marsh**
  - **Sonny Bone Salton Sea NWR**
    - about 188 acres (Yuma clapper rail)
    - about 662 acres seasonal wetland for waterfowl
  - **Imperial Wildlife Area**
    - about 7,930 acres
  - **Imperial Valley duck clubs**
    - about 9,731 acres
- **Managed saline wetland**
    - **??/nil**

Uplands

- **Tree/Shub**
  - **Native tree habitat**
    - about 50 to 75 acres on Sonny Bono Salton Sea NWR
    - scattered small stands
  - **Tamarisk**
    - about 14,825

- **Agriculture**

Required Habitat Mitigation Projects

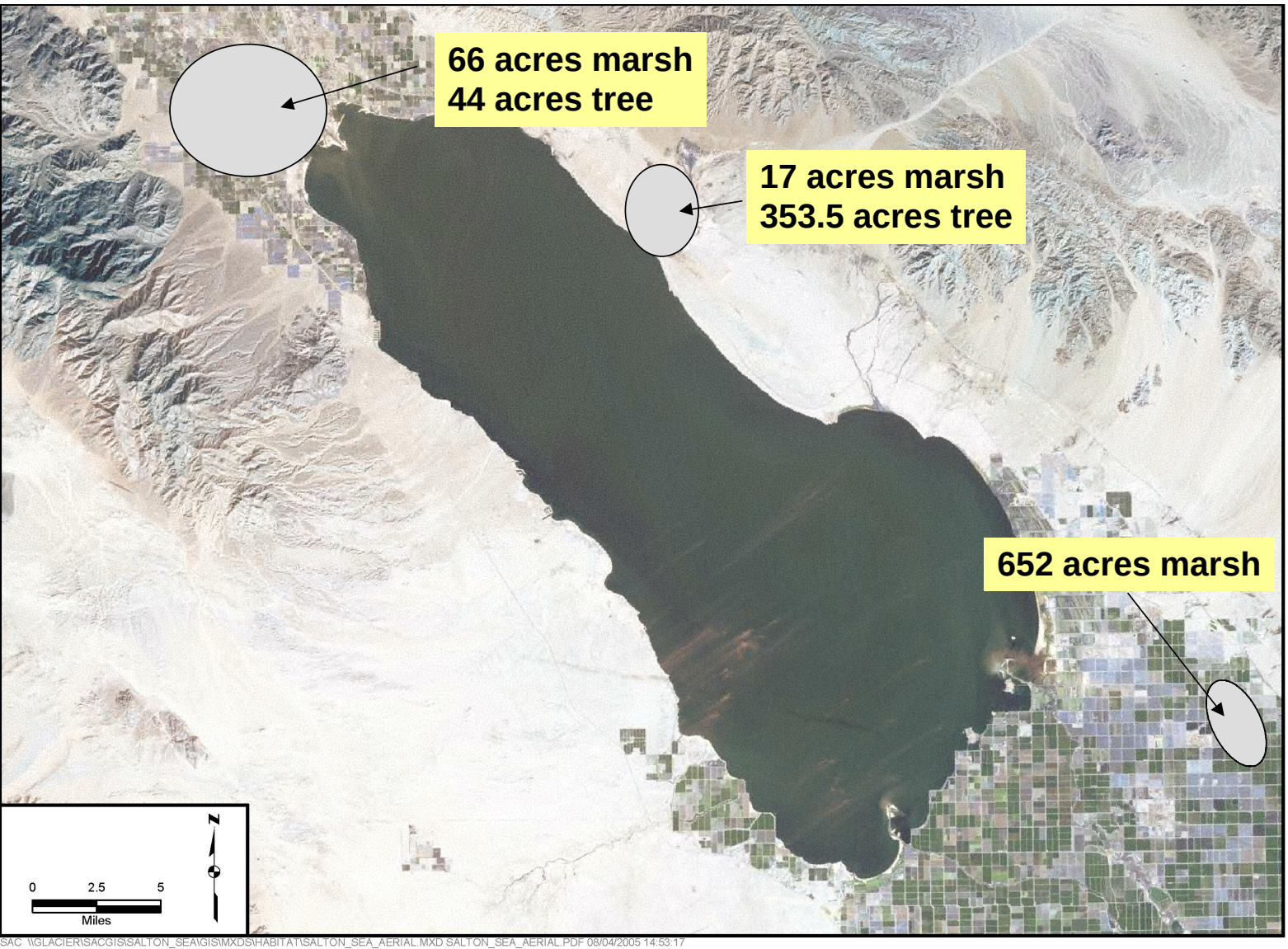
Marsh Habitat

Project	Acres	Location
IID/SDCWA Water Transfer	652	Not yet finalized
CVMSHCP	66	Whitewater Delta Conservation Area
Coachella Canal lining	17	Dos Palmas
All American Canal lining	1	Wetland complex between drops 3&4
TOTAL	736	

Required Habitat Mitigation Projects

Tree Habitat

Project	Acres	Location
IID/SDCWA Water Transfer	TBD	TBD
CVMSHCP	44	Whitewater Delta Conservation Area
Coachella Canal lining	352.5	Dos Palmas
All American Canal lining	43	Wetland complex between drops 3&4
TOTAL	439.5 minimum	



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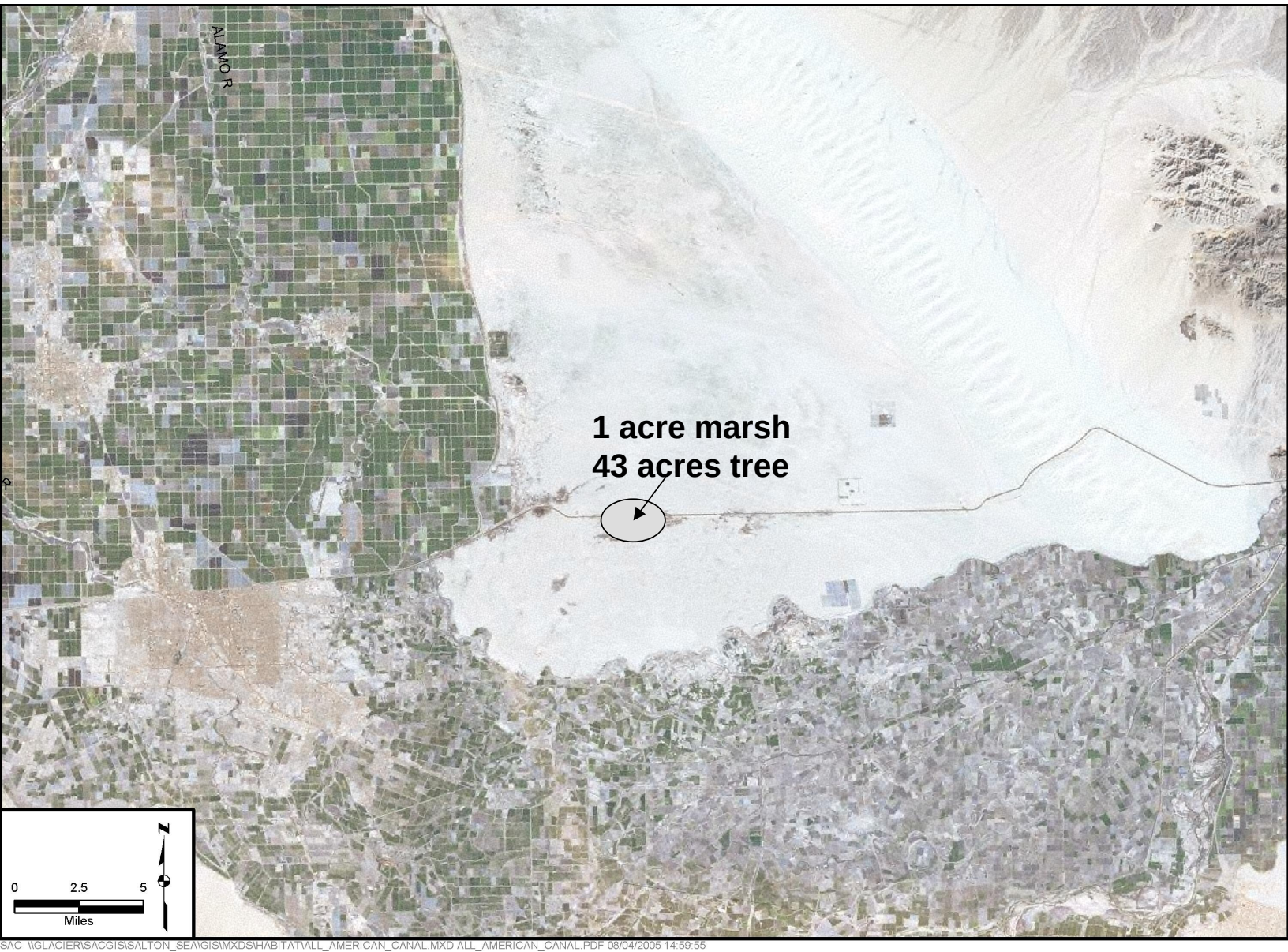

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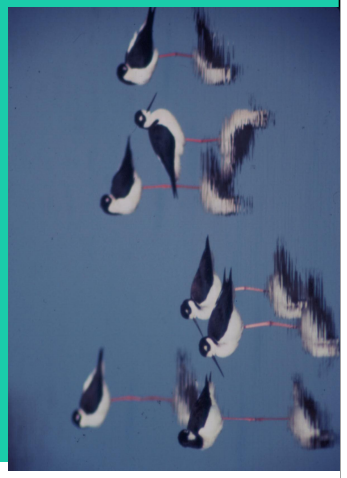
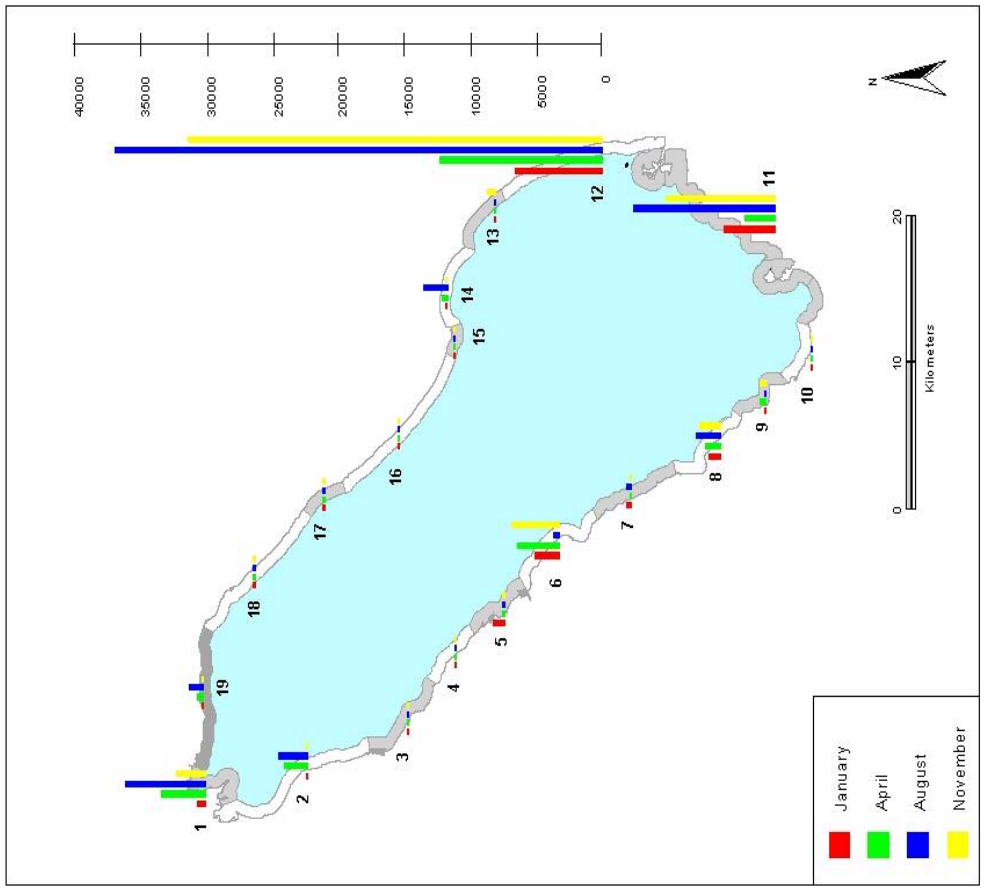
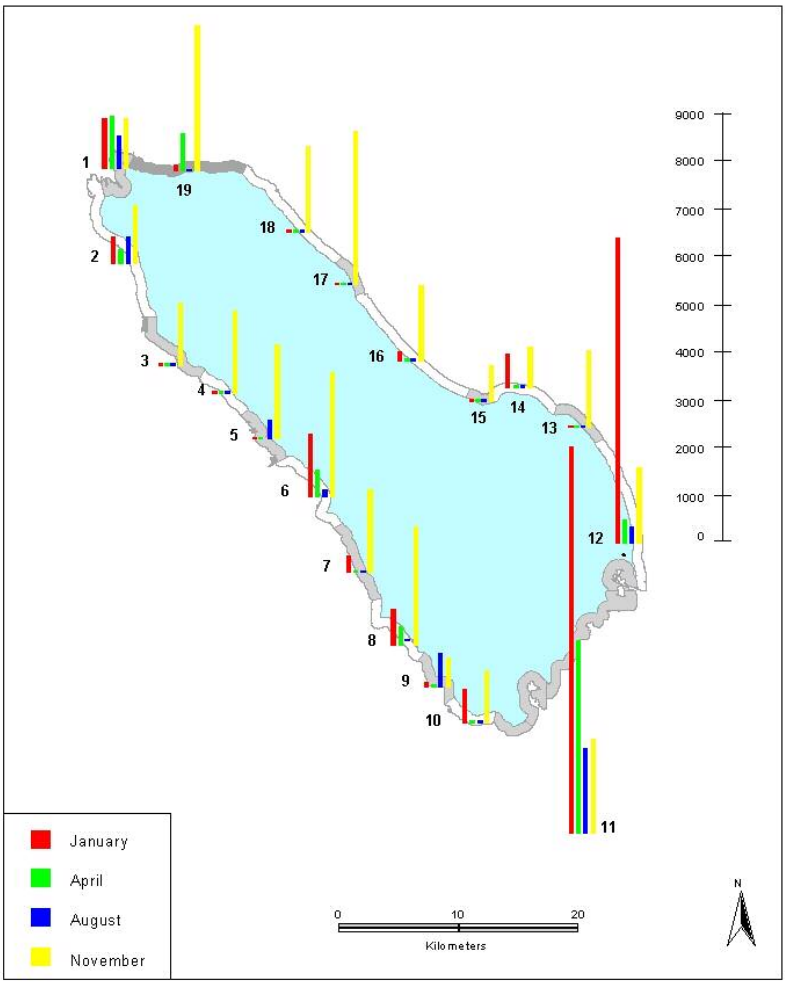
Shorebirds: 1999 Total Numbers

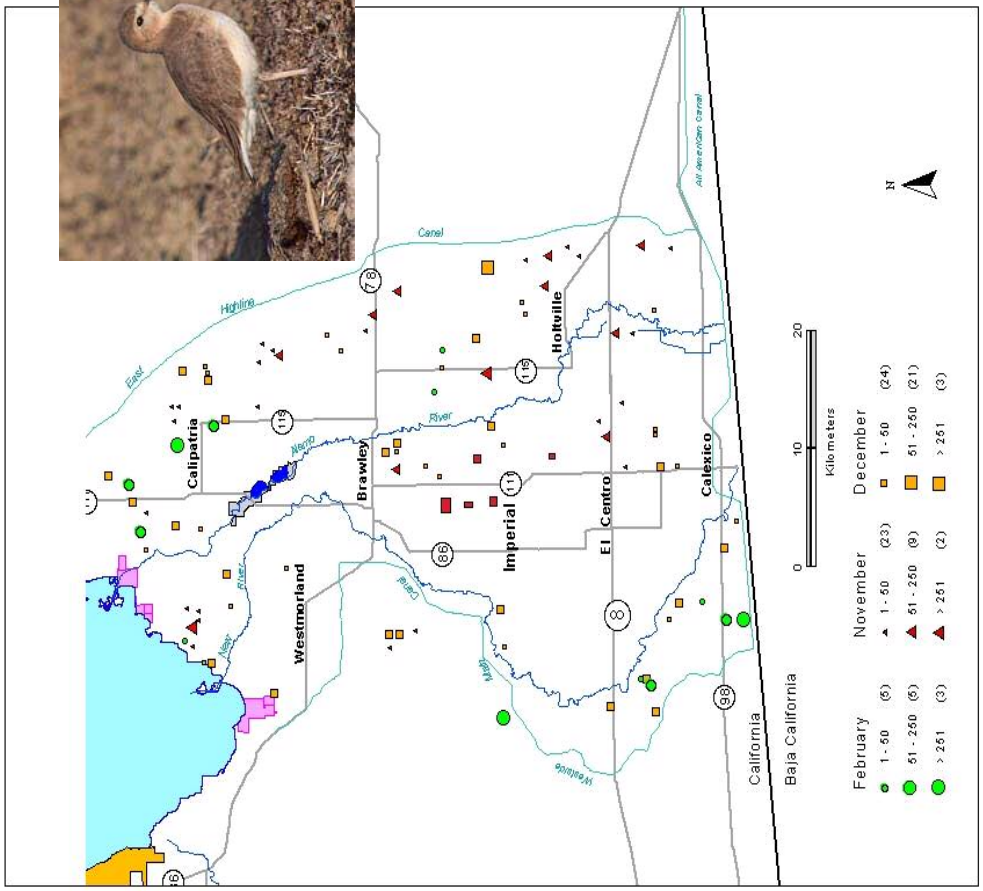




Pelicans and Cormorants



Mountain Plover: 1999



Update on Science Panel Activities

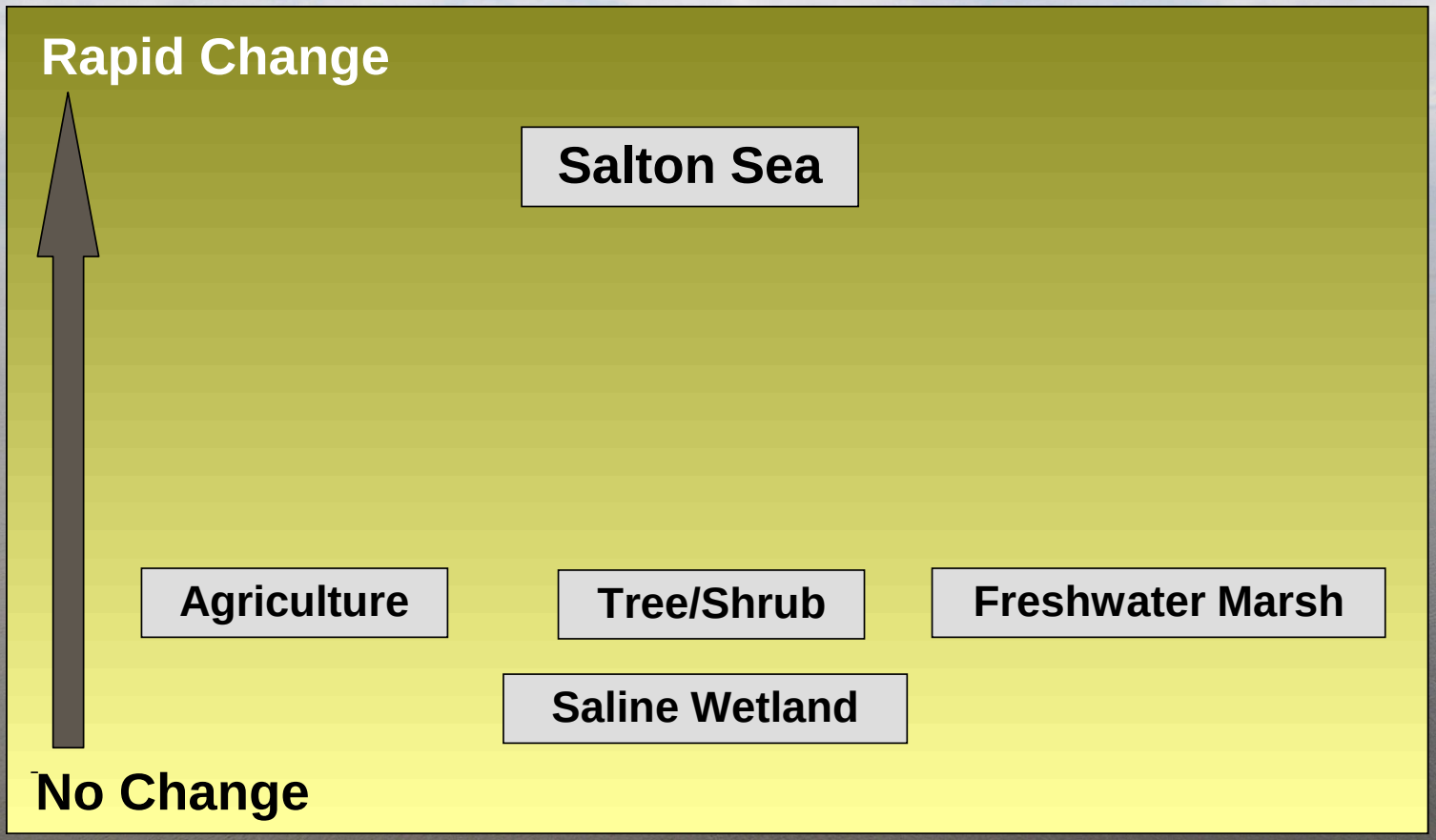
Update on Habitat Modeling

Restoration Approach

General Approach

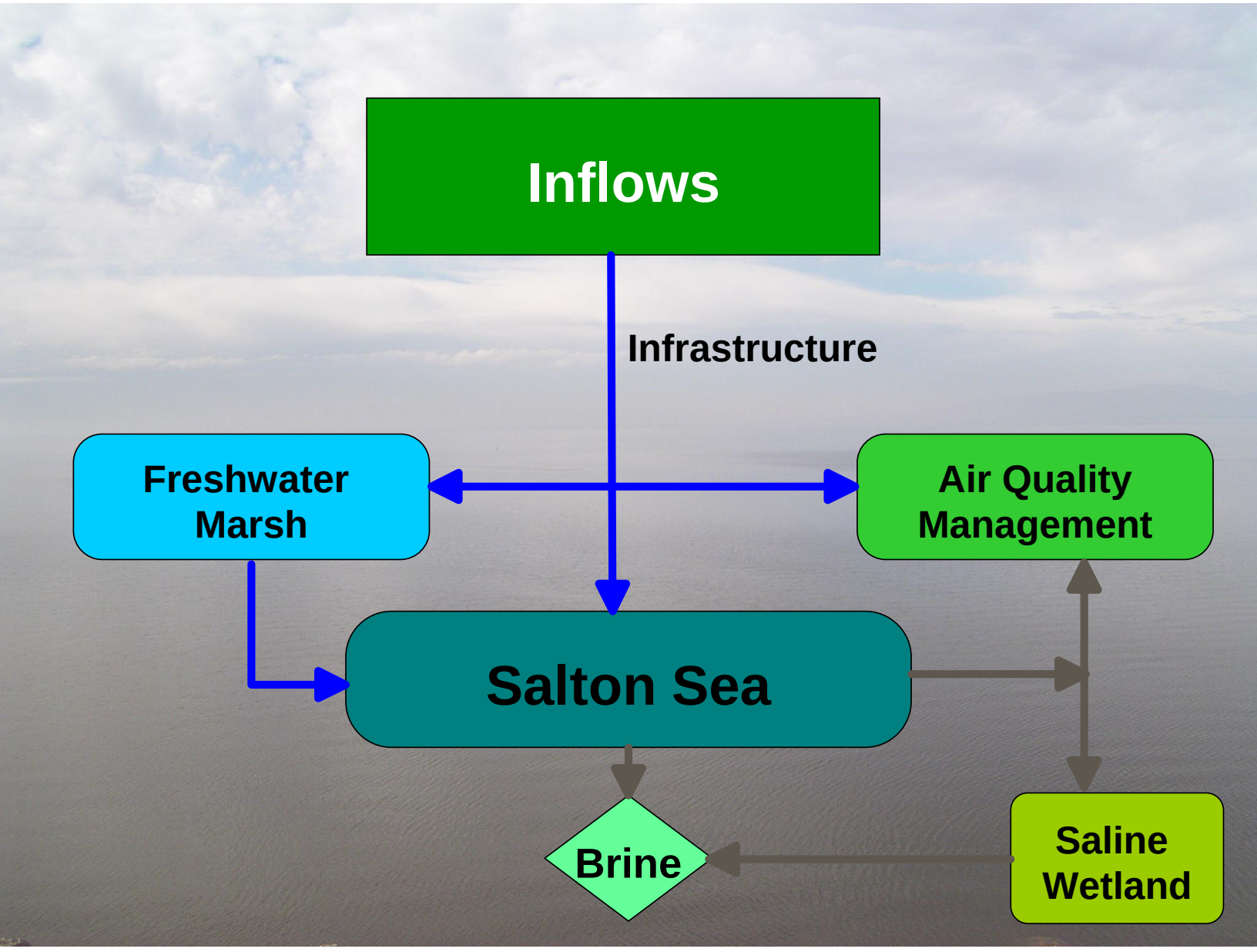
- Understand current and historic habitats and use by fish wildlife
- Identify habitats and functions that are changing or limiting
- Understand the limitations of the system and opportunities to restore or create habitat function
- Identify restoration criteria/actions for those habitats that we can influence through management
- Justify and document assumptions and restoration criteria
- Develop alternatives

What's changing?



Opportunities

Preserve	Enhance/Restore	Create
·Agricultural Habitats	·Open Water (Salton Sea)	·Freshwater Marsh
·Tree/Shrub Habitat	·Shoreline/Shallow (Salton Sea)	·Saline Wetland
·Freshwater Marsh	·Islands and Snags	·Native Tree Habitat
	·Estuaries/Deltas (river mouths)	


Inflows
Infrastructure
Freshwater Marsh
Air Quality Management
Salton Sea
Brine
Saline Wetland

Primary Restoration Considerations

- **Open deep water**
  - **Eutrophication**
  - **Salinity**
  - **Selenium**
  - **Depth**
  - **Surface area**
  - **Islands**
  - **Arrangement (proximity to other habitats)**
- **Estuary/deltas (river mouths)**
  - **Silt**
  - **Selenium**
  - **Configuration**
  - **Location**
  - **Islands/snags**

- **Freshwater marsh**
  - **Selenium**
  - **Salinity**
  - **Water use**
    - vegetation
    - depth
    - seasonality
  - **Arrangement**

- **Saline wetland**
  - **Salinity**
  - **Selenium**
  - **Arrangement**

Some Key Habitat Decisions

- **Salton Sea**
  - **size of residual Sea**
  - **importance of supporting fish (fish-eating birds)**
  - **level of water treatment**
  - **location**
  - **elevation**
- **Managed freshwater marsh**
  - **proportion relative to saline wetland**
  - **level of treatment**
  - **seasonality**
  - **location**
- **Managed saline marsh**
  - **proportion relative to saline wetland**
  - **location**

Document and Justify Assumptions and Restoration Criteria

- Helps build defensible technical foundation for the restoration plan
- Helps ensure scientific credibility
- Helps define research and monitoring needs
- Helps in development of adaptive management plan

Example

Eutrophication (Salton Sea)

- **Restoration Criterion/Action:**
  - **Reduce phosphorus loading to the Salton Sea**
- **Justification:**
  - **Salton Sea is phosphorus limited; reducing P loads should reduce level of eutrophication**
- **Uncertainty:**
  - **Effect of reduced eutrophication on magnitude and frequency of turnover events that lead to fish (and invertebrate) kills**
  - **Effect of reduced eutrophic conditions on bioavailability of selenium**

Example

Salinity (Salton Sea)

- **Restoration Criterion/Action:**
  - **Stabilize salinity**
  - **>20 ppt**
  - **Target about 35 ppt (30 – 40 ppt range)**
- **Justification:**
  - **Salinity greater than 20 ppt reduces plant growth, Se bioavailability, and botulism**
  - **Marine salinity supports fish and invertebrate species known be successful at the Salton Sea**
- **Uncertainty:**
  - **Value of stabilized salinity if level of eutrophication is not reduced**